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Memorandum

To: **LaDonna Turner, Site Assessment Manager**
Technical and Enforcement Branch
U.S. Environmental Protection Agency, Region 6

From: **Dana Bahar, Manager, Superfund Oversight Section**
Ground Water Quality Bureau, New Mexico Environment Department.

Date: **September 10, 2009**

Subject: **Pre-CERCLIS Screening Assessment of Isabella Mine, McKinley County, New Mexico: Further action under CERCLA recommended**

Site name	Isabella Mine				
City	not applicable	**State**	New Mexico	**Zip code**	not applicable
County	McKinley				
Latitude	35° 22’ 49.19”	**Longitude**	107° 49’ 36.19”		

Site physical description: The Isabella Mine is comprised 2 areas of waste material piles and one open shaft that are approximately 0.06 air-miles apart. The more northerly area is approximately 0.6 miles south of the Rio Algom—Ambrosia Lake mill. The southern area of the minesite is comprised of several piles of waste material and a mostly barren area with elevated radioactivity; these are located in or near an arroyo. The northern area of the minesite is comprised of larger waste material piles and barren areas with elevated radioactivity and an unfenced open shaft. This area is located at the base of an escarpment, along a roadway that has become a drainage.

Site identification: Potential alluvial ground water contamination within the Grants Mineral Belt was identified because background standards established for the contaminants of concern for ongoing remedial action associated with the Homestake Mining Company NPL site (CERCLIS NMD0007860935) are generally higher than Maximum Contaminant Levels (MCLs). NMED conducted sampling of private residential wells in subdivisions located in the vicinity of the HMC site, and found that the majority had one or more contaminant concentrations exceeding MCLs.

Site summary: Observations made during NMED’s Site reconnaissance are shown on the accompanying figures. The barren area in the southern portion has radioactivity of 741 counts per second (cps; background assumed to be in the range of 10 to 40 cps from data collected at nearby sites); the waste material bordering and within the arroyo have slightly elevated radioactivity (highest reading during reconnaissance=104 cps). The open mine shaft in the northerly area is a hazard to livestock, wildlife, and humans. A barren area near the shaft had radioactivity of 582

cps, while 330 cps was measured at the shaft opening. The former roadway that cuts through this area has been extensively incised by erosion. Contamination of vicinity soils and surface drainages by precipitative erosion and wind dispersion comprise the primary contaminant pathways that may be associated with this site. Additionally, site runoff of contaminated wastes may impact ground water quality either through seepage through alluvium or by direct entry to the subsurface via the open hole and shaft.

Targets: Residences are located near the junction of State Hwy. 605 and 509, approximately 3.0 air-miles southeast of the Site. Other potential targets may include cattle and wildlife.

Closest well sampled to date: livestock well SMC-17 (0.8 air-miles; 98.4 µg/l total uranium in 2009 sampling).

Site ownership and Potentially Responsible Parties: Surface rights reportedly are held by the Bureau of Land Management (BLM); mineral rights are held by Newmont Mining Company. United Nuclear and Ranchers Exploration Company reportedly last operated the mine in 1980.

File review: NMED staff reviewed the following files:

- Database compiled by Mining and Minerals Division of the New Mexico Energy, Minerals, and Natural Resources Department (07/20/2007).
- Anderson, Orin J., 1980. "Abandoned or inactive uranium mines in New Mexico".
- McLemore, Virginia T. and William L. Chenoweth, 1991. "Uranium mines and deposits in the Grants district, Cibola and McKinley Counties, New Mexico." New Mexico Bureau of Mines and Mineral Resources Open-file report 353.
- Rappaport, Linda, "Uranium deposits of the Poison Canyon ore trend, Grants District," in "Geology and technology of the Grants Uranium Region, 1963. State Bureau of Mines and Mineral Resources.
- U.S. Geological Survey, 1997. "Gallup quadrangle NURE HSSR study." OFR-97-492.

Site reconnaissance: NMED staff conducted a Site reconnaissance on July 2, 2009.

Recommendation: A release of CERCLA hazardous substances has been documented at the site. NMED recommends further investigation under CERCLA to assess the risk posed by the site using the Hazard Ranking System.

NMED recommends that the investigation include the following:

1. Sample sediments along drainages to characterize extent of Site-derived waste dispersion.
2. Investigate and characterize ground water impacts.

In addition NMED recommends the following actions be performed to address immediate threats to public health and the environment:

1. Remove waste with elevated radioactivity.
2. Plug open shafts.

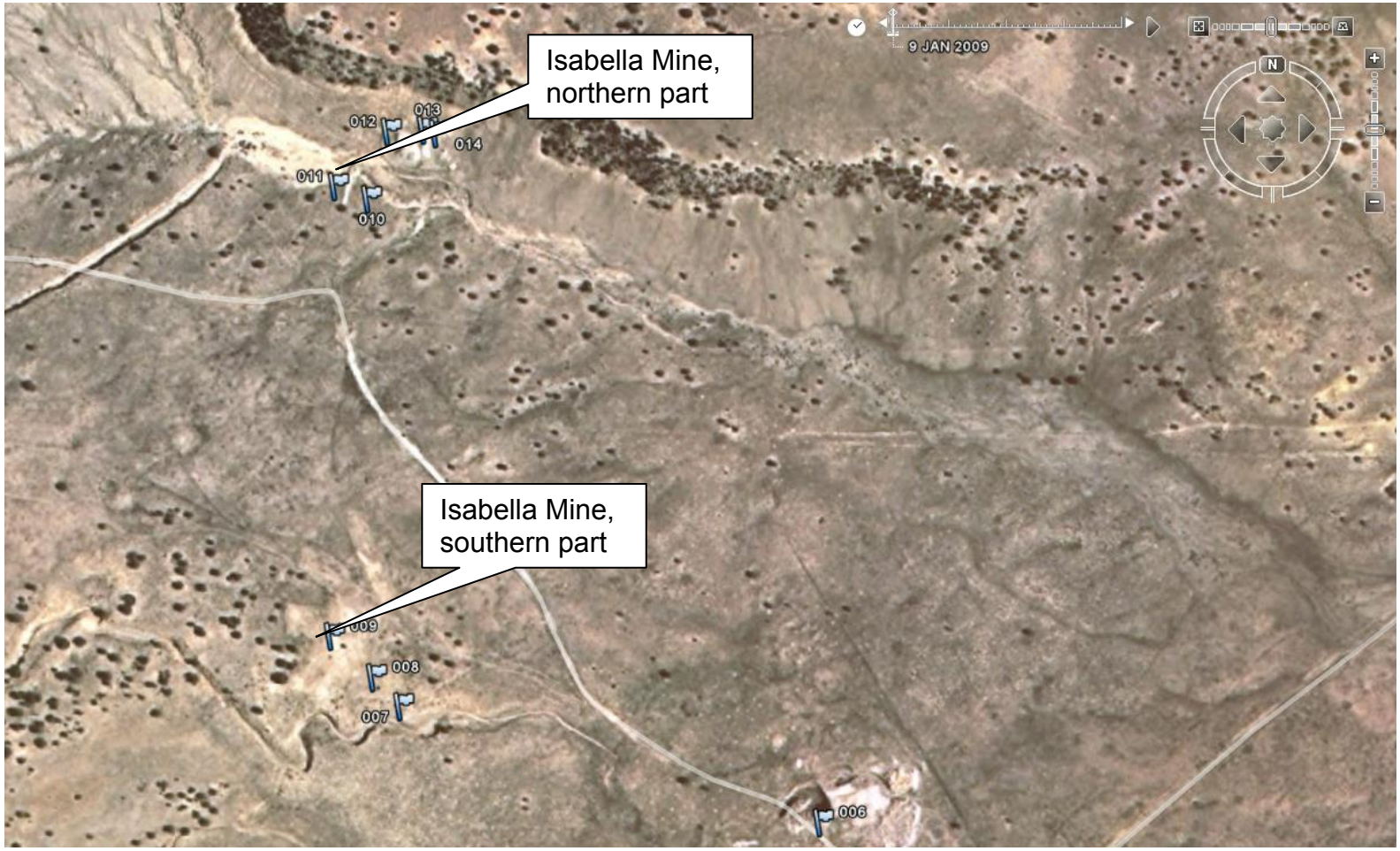


Figure 1: Isabella Mine overview

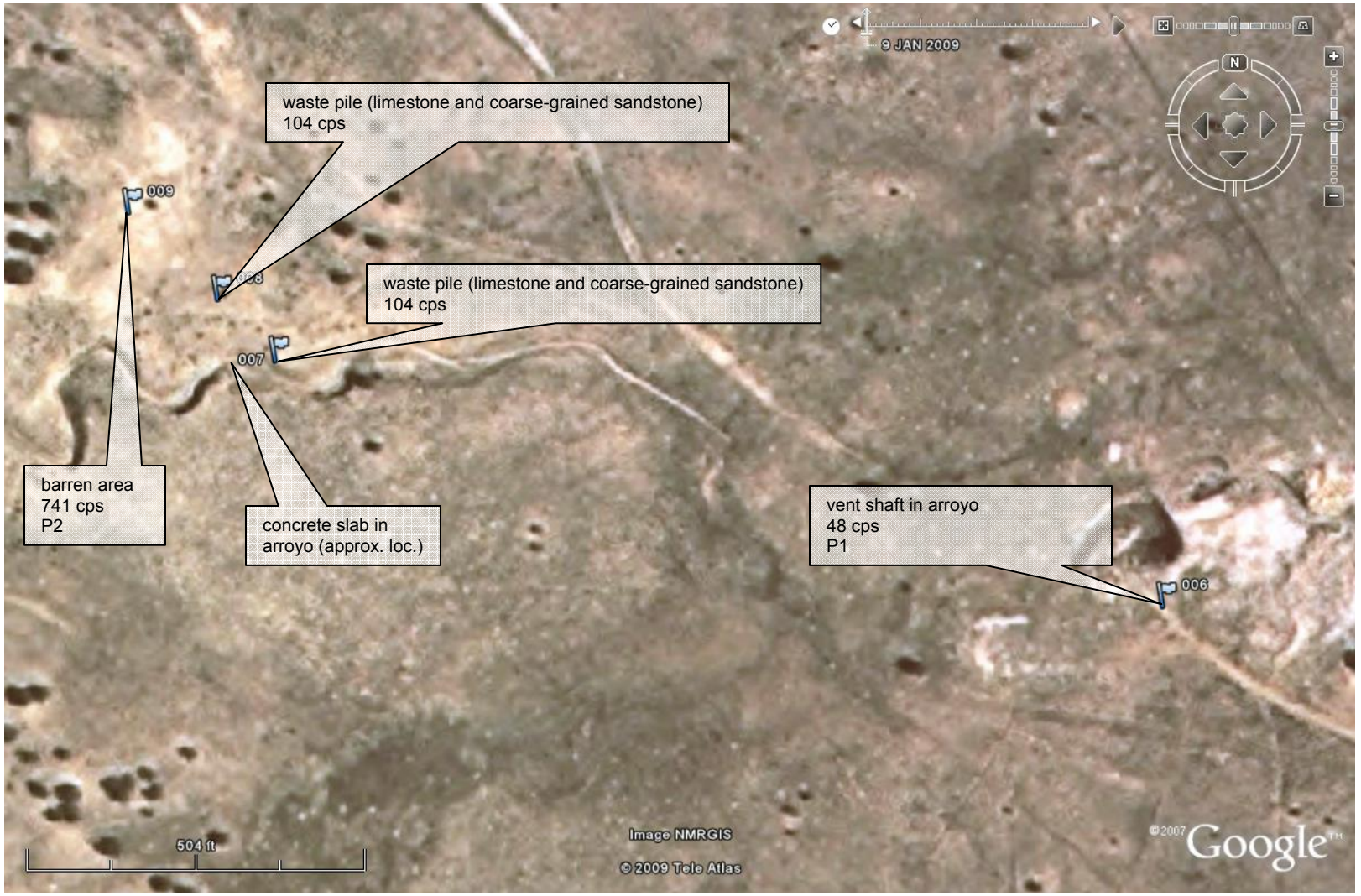


Figure 2: Isabella Mine, southern part—measurements taken on July 2, 2009

"Px" reference the location of photographs on pages following.

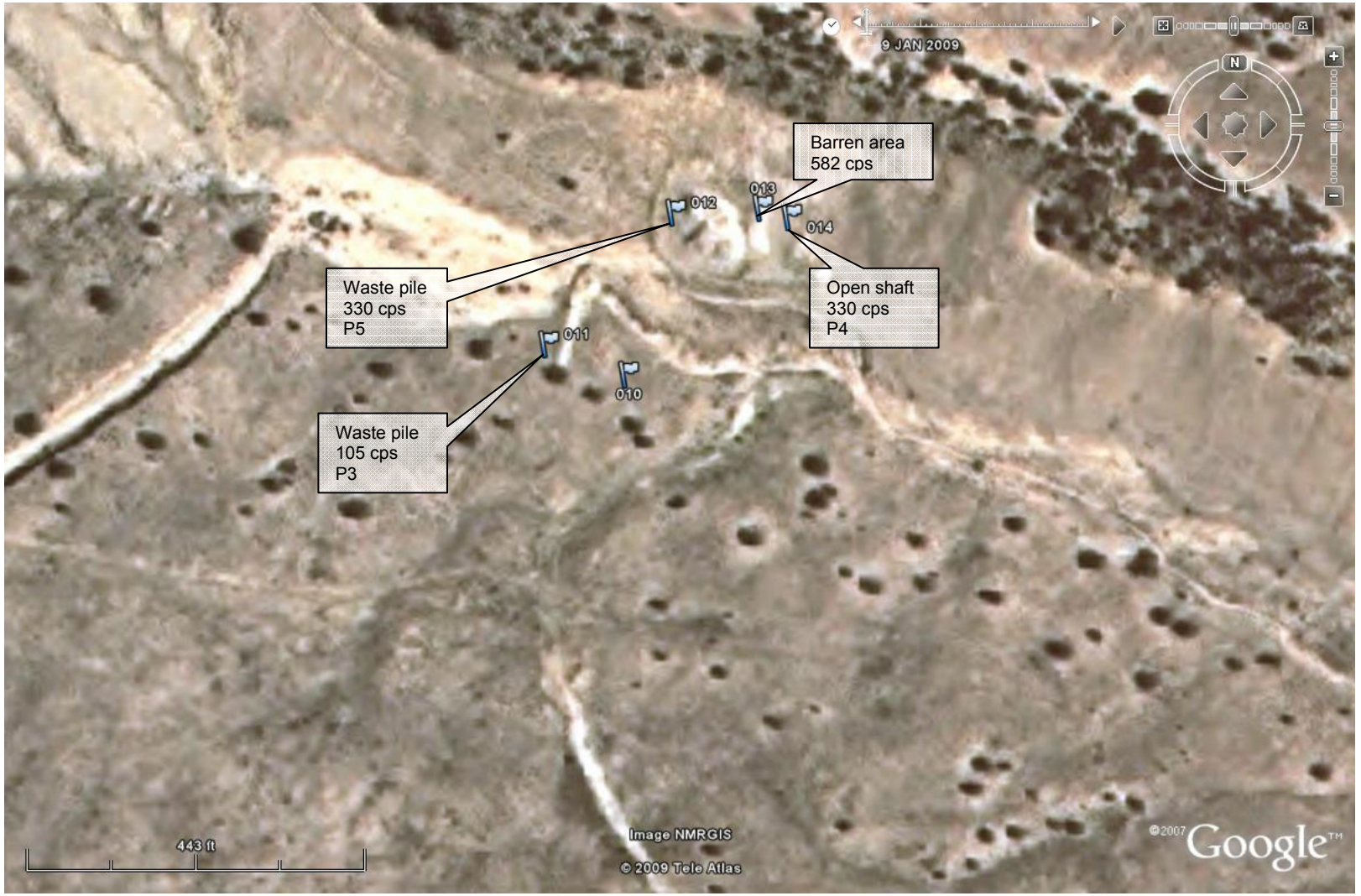
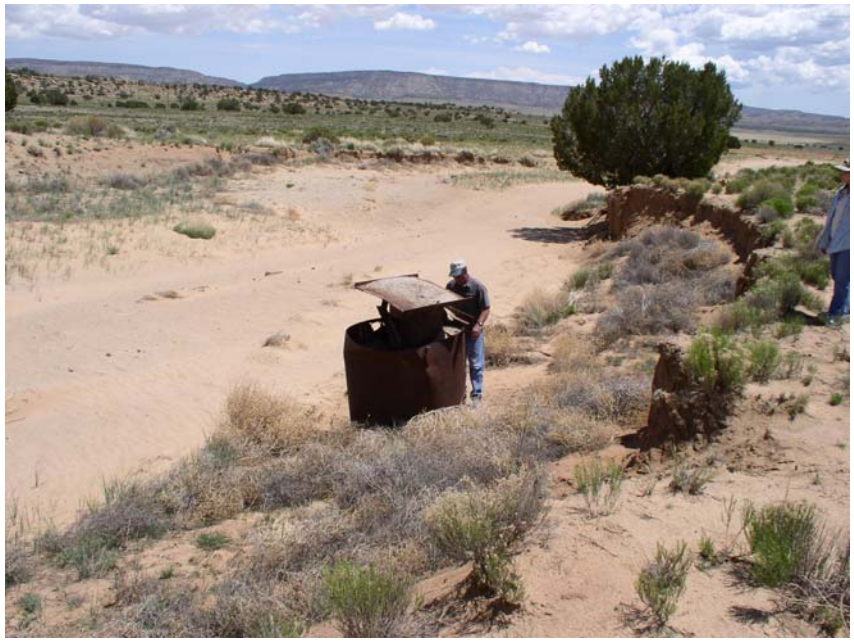
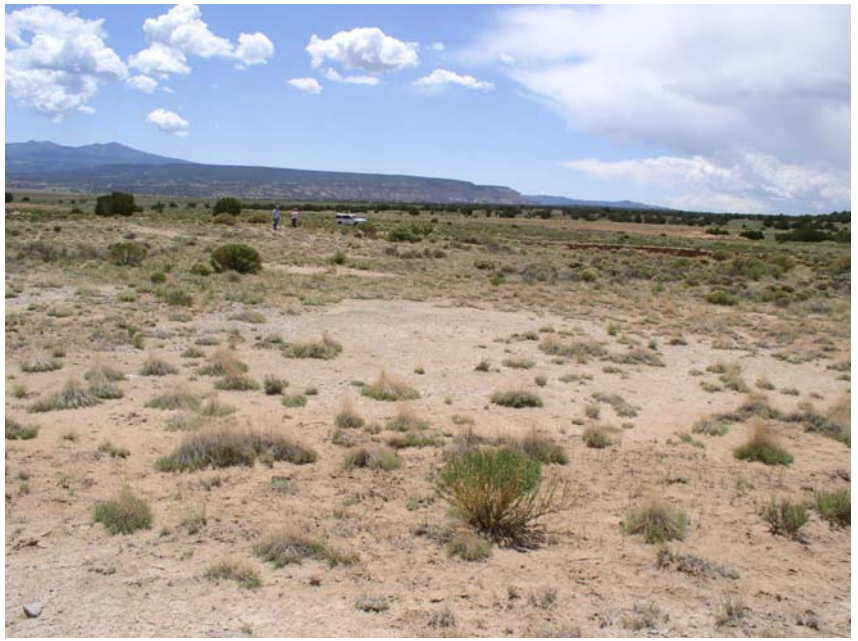


Figure 3: Isabella Mine, northern part—measurements taken on July 2, 2009

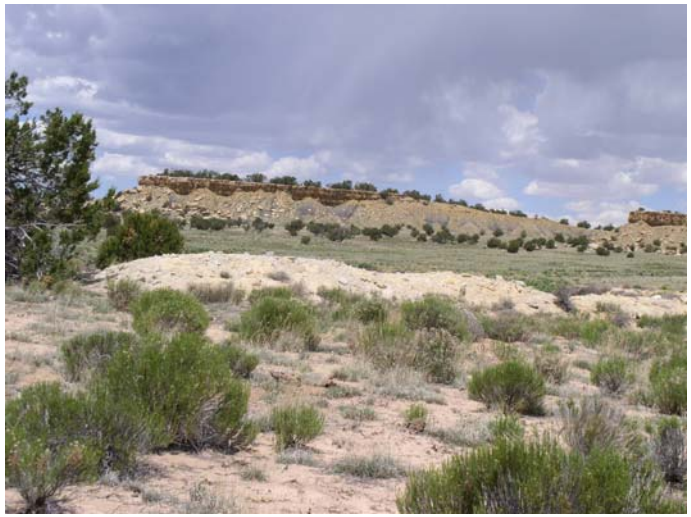
"Px" reference the location of photographs on pages following.



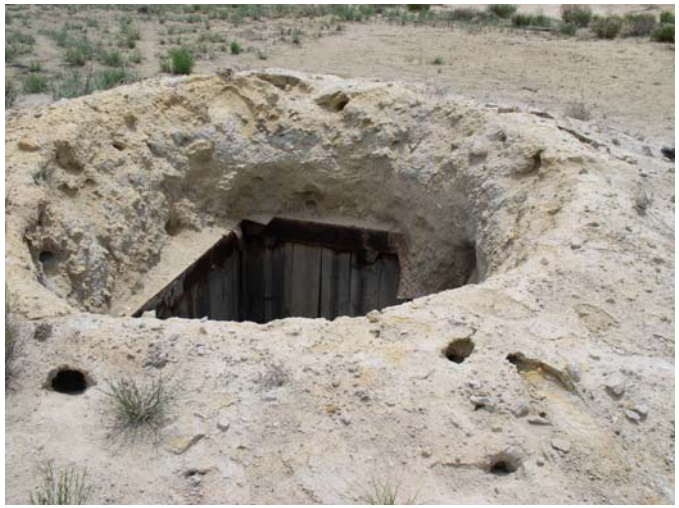
P1: Isabella Mine vent shaft



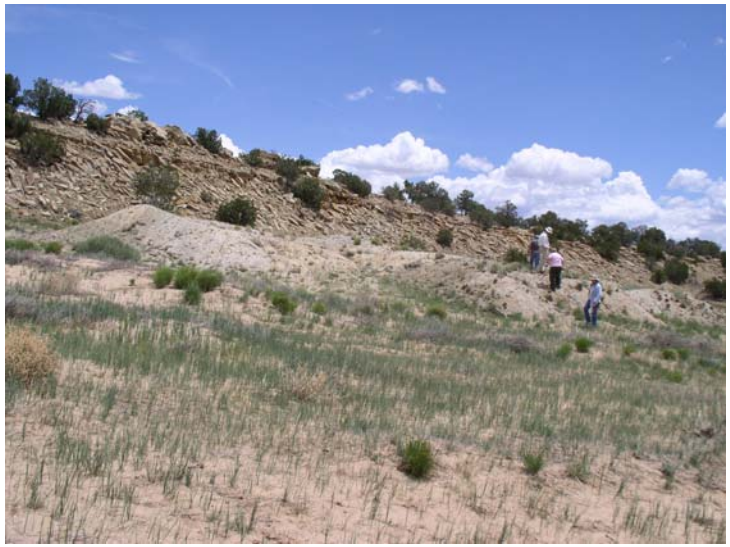
P2: Isabella mine barren area



P3: Isabella Mine waste pile



P4: Isabella Mine shaft



P5: Barren waste pile